Markers of Adenocarcinoma Characteristic of the Site of Origin

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Figure 1

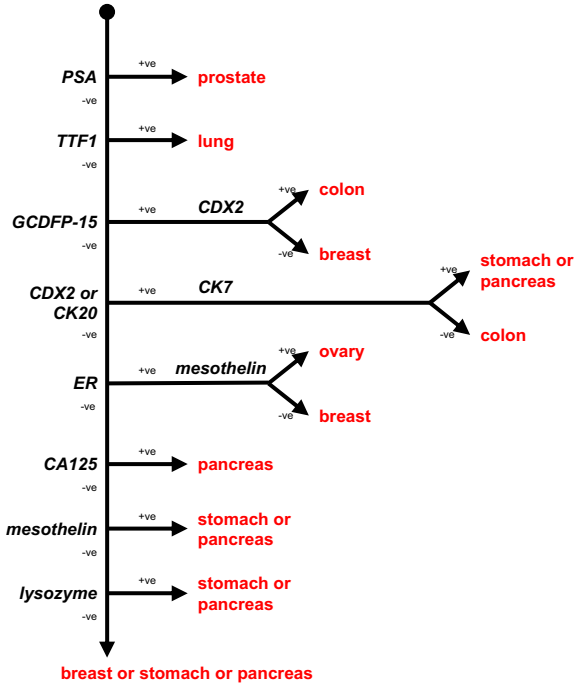
A. Table of immunohistochemistry results from first round: ten selected markers

		% Positivity of each marker									
Primary site	**No.**	PSA	TTF1	GCD FP15	CDX2	CK20	CK7	ER	Meso thelin	CA 125	Lyso zyme
Breast	35	0	0	54	0	0	83	77	3	6	14
Ovary serous	18	0	0	6	0	0	89	83	94	89	0
Ovary mucinous	10	10	0	10	20	30	40	40	30	20	20
Endometrial adenoca	10	10	0	10	0	0	60	30	50	90	10
Pancreas	53	0	2	2	0	19	96	0	47	53	51
Ampullary adenoca	6	0	0	17	17	83	83	0	83	67	67
Cholangiocarcinoma	10	0	0	0	10	30	80	0	70	50	90
Stomach	34	3	3	0	18	18	35	0	21	9	85
Esophageal adenoca	21	0	0	0	10	33	48	0	19	10	57
Colon	47	0	0	9	83	68	4	2	2	0	53
Prostate	18	100	11	0	0	0	0	11	0	0	6
Lung	46	0	91	4	2	2	91	9	39	39	43
Lung small cell ca	3	0	100	0	0	0	0	0	0	0	0
Lung squamous ca	7	0	57	0	0	0	43	0	14	14	14
Mesothelioma	6	0	0	0	0	0	67	0	50	17	17
Esophageal squ ca	7	0	0	0	0	0	0	0	0	0	0
Renal cell ca	15	0	0	0	0	0	0	0	0	0	7
Hepatocellular ca	6	0	0	0	0	0	0	0	0	0	0

B. Sensitivity and specificity of each marker in first round of immunohistochemistry

Marker	Tumors of	% Sensitivity	% Specificity
PSA	Prostate	100	99
TTF1	Lung	91	98
CDX2	Colon	83	96
CDX2	Colon and stomach	56	98
CK20	Colon	68	91
CK20	Colon, stomach and pancreas	36	97
GCDFP-15	Breast	54	96
ER	Breast and ovary	74	95
CA125	Ovary and pancreas	88	88
Mesothelin	Ovary and pancreas	85	85
Lysozyme	Stomach and pancreas	65	69
CK7	(Stomach and pancreas) versus colon	72	96

C. Decision tree derived from first round data



D. First round data: site of origin predicted from table

	Predicted primary site									
Actual primary site	Breast	Colon	Lung	Ovary	Panc-reas	Panc OR Stomach	Stomach	Prostat e	Nega-tive	Missing
Breast	**31**			1					1	2
Colon	2	**44**				1				
Lung		1	**41**		1	2				1
Ovary serous				**18**						
Ovary mucinous		2		**5**			1	1		1
Pancreas	2		1	5	**1**	**39**			1	4
Stomach		2	1			**21**	**5**		4	
Prostate								**18**		

261 in total, minus 8 missing = 253. 223 correct = 88%

E. First round data: site of origin predicted from decision tree

	Predicted primary site									
Actual primary site	Breast	Colon	Lung	Ovary	Panc-reas	Panc OR Stomach	Pa, St OR Brst	Prostat e	Nega-tive	Missing
Breast	**28**					1	**5**			1
Colon	2	**43**				1	1			
Lung		1	**41**		2	1				1
Ovary serous	1			**14**	2	1				
Ovary mucinous	2	3		**2**		1		1		1
Pancreas	1		1		**21**	**23**	**4**			3
Stomach		7	1		3	**21**	**1**	1		
Prostate								**18**		

261 total, minus 6 missing = 255. 221 correct = 87%.

F. Second round data: site of origin predicted from table

	Predicted primary site									
Actual primary site	Breast	Colon	Lung	Ovary	Panc-reas	Panc OR Stomach	Stomach	Prostat e	Nega-tive	Missing
Breast	**13** 3			1						
Colon		**15** 5				1				1
Lung			**18** 5			1 1			1	
Ovary serous				**6** 2						1
Ovary mucinous	1			**2** 1						
Pancreas		1	1 1	1 2	**1**	**16** 2			2	
Stomach		1 1				**11** 2	**1**			2
Prostate								**7**		

130 in total, minus 4 missing = 126. 110 correct = 87%. Red = metastasis

G. Second round data: site of origin predicted from decision tree

	Predicted primary site									
Actual primary site	Breast	Colon	Lung	Ovary	Panc-reas	Panc OR Stomach	Pa, St OR Brst	Prostat e	Nega-tive	Missing
Breast	**13** 3				1					
Colon		**16** 5								1
Lung			**18** 5			1 1	1			
Ovary serous				**6** 1	1					1
Ovary mucinous	1			**1** 1		1				
Pancreas		1	1 1		**7** 3	**9** 1	**2** 2			
Stomach		2 1			1	**10** 2	1			1
Prostate								**7**		

130 in total, minus 3 missing = 127. 113 correct = 89%. Red = metastasis.

H. Table of immunohistochemistry results for primary tumours from both rounds

		% Positivity of each marker									
Primary site	**No.**	PSA	TTF1	GCD FP15	CDX2	CK20	CK7	ER	Meso thelin	CA 125	Lyso zyme
Breast	52	0	0	49	0	0	87	79	4	13	11
Colon	69	0	0	6	86	78	3	1	7	1	43
Lung	72	0	90	3	1	1	90	6	36	38	35
Ovary serous	27	0	0	4	0	0	93	81	96	93	7
Ovary mucinous	14	7	0	14	14	21	57	50	36	36	29
Pancreas	80	0	4	1	2	15	94	0	49	50	51
Stomach	52	2	2	0	21	21	50	0	19	8	81
Prostate	25	100	8	4	0	0	0	8	0	0	4